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ABSTRACT

The guide is intended to help technology educators and administrators recognize the characteristics of students with special needs and modify the learning environment and instructional process appropriately. Standards applicable to special needs students from among 235 designed for general technological education are cited, and the background of legislative action on behalf of special populations is briefly reviewed. Information follows on identification of special needs learners (learner characteristics of disadvantaged, gifted and talented, and various types of handicapped students). Approaches to accommodating special needs students in technology education programs focus on the role of the individualized education program, modification of the physical environment, and modification of curriculum and instructional approaches (such as integration of career information with laboratory activities). A chart listing suggested instructional strategies for disadvantaged and gifted students along with students who have learning disabilities, mental retardation, emotional disturbances, orthopedic handicaps, visual handicaps, learning impairments, and speech impairments concludes the guide. (CL)

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SPECIAL NEEDS GUIDE

FOR TECHNOLOGY EDUCATION PROGRAMS

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Special Needs Guide for Technology Education

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Preface

This guide was developed to assist technology education teachers, teacher educators, local and state supervisors, and administrators to develop appropriate technology education programs for special needs populations. Specifically, the guide should assist technology educators in recognizing the characteristics of students with special needs, understanding their unique educational needs, and modifying the learning environment and instructional methodology to accommodate those needs in technology education classes.

The profession is in an unique position to provide meaningful learning experiences to children with special needs. Children perceived to be disadvantaged, gifted and talented, and handicapped can all benefit from the study of technological practices. The organization, methodology, and laboratory procedures employed in instruction contribute to the unique learning characteristics of the special needs populations.

Technology educators have demonstrated leadership in providing appropriate educational experiences for children with special needs. The high interest and excitement generated by the use of tools, materials, and processes in the laboratory environment has improved the motivation, self-esteem, and achievement performance of *all* children. Of paramount importance are the improved levels of accomplishment which relate to the acquisition of career information, technical skills and consumer competence. Whether mainstreamed into regular classes or taught in a self-contained group, experiences in technology education will benefit special needs learners.

Standards Relating To Special Needs

Among the 235 standards which appear in the document entitled *Standards for Technology Education Programs*, there are 19 which directly address students with special needs. These are listed below:

Philosophy

1.1 3.b) The philosophy identifies the needs, abilities, and interests of all learners, regardless of race, sex, creed, national origin, or handicapping conditions.

Instructional Program

2.2 3. Course objectives are utilized as a basis for developing the technology education component of the Individualized Education Program (IEP).

Student Populations Served

3.1 2. Students who are academically and/or economically disadvantaged are provided special services and assistance, as required, to enable them to succeed in the technology education program.

3.1 3. Students who have physical, mental, learning and/or emotional impairments are provided special services and assistance, as required to enable them to succeed in the technology education program.

3.1 4. Students identified as handicapped and requiring additional or modified educational services or materials are enrolled only after the Individualized Education Program (IEP) has been prepared.

3.1 5. Students identified as gifted and/or talented are provided learning activities consistent with their abilities.

3.1 6. Technology education is provided for students, regardless of their cultural differences.

Instructional Staff

4.1 5. The technology education teacher is prepared, through preservice/inservice education, to provide experiences for students with special needs.

Administration and Supervision

5.1 5. Teacher aides or paraprofessionals are provided in classes where enrollment of students with special needs necessitates their assistance.

5.5 4.b) Demographic data about all technology education students are available by grade level and by course, including but not limited to course enrollments by racial and ethnic categories, by sex, and by type and number of students with special needs.

Support Systems

6.1 1.b) Personal are available to assist the technology education teacher in serving students with special needs.

6.2 8. Accessibility for the handicapped is ensured through the elimination of architectural barriers.

6.2 12. As needed, specially designed or modified tools, machines, and equipment are provided for students with special needs.

6.2 16. Books and other instructional materials are provided to meet the unique requirements of students with special needs.

Instructional Strategies

7.1 6. Teachers provide input to the Individualized Education Program (IEP) committee for special needs students enrolled in Technology education.

7.2 1.e) Instructional strategies appropriate for serving students with special needs have been identified and incorporated in the technology education program.

7.2 3. Each identified special needs student enrolled in technology education is evaluated annually through procedures and criteria described in the Individualized Education Program (IEP).

Safety and Health

9.2 2.f) Special safety and health accommodations are provided for students with special needs.

9.2 4.e) Specially adapted personal protection devices are available for and used by students with special needs.

Serving Students With Special Needs in Technology Education

All children are **special,** however, some have more need for specialized education because of the diversity of their unique social, cognitive, or neuromuscular functioning. This includes children who are handicapped, disadvantaged, or gifted and talented. Educational methods and procedures, instructional programs and materials, and school facilities all may need to be modified for the purpose of individualizing programs and instruction to ensure that all children will develop to their fullest potential.

Recent federal legislation has provided the impetus to modify existing educational practices for special needs learners. Such legislation is reflected in Public Law 94-142, the Education for All Handicapped Children Act of 1975; Public Law 94-482, the Vocational Educational Amendments of 1976; and Sections 503 and 504 of the Rehabilitation Act of 1973. All of these emphasize the need to identify and infuse educational strategies and techniques to meet the challenges of providing viable educational programs for special needs persons. Further, the legislation encourages public education to provide instructional programs which will be the least restrictive educational alternative for handicapped students.

Congressional action on behalf of special populations has been influenced by recognition of such factors as:

1. Extremely high unemployment rates among out-of-school youth and adults from special needs groups.
2. Under-utilization of the work force through both discriminatory hiring practices and underemployment.
3. Occupational stereotyping with regard to the types of occupations for which special populations should receive training.
4. Lack of appropriate technology instruction and occupational training opportunities for students with special needs.
5. Inadequate preparation of professional staff to provide appropriate technology and occupational education opportunities for learners with special needs.

The issue of providing specialized instructional programs for gifted and talented students has not been addressed in the recent federal legislation regarding special needs populations. However, educators have recognized the need to provide an emphases on improving on improving educational opportunities to enable mentally superior children to develop their intellectual potential. These students should provide a ready resource of future technology educators as well as an enlightened group of technologically literate citizens.

It is evident that we are failing to develop and utilize a substantial portion of our human resources. Our society's continued economic growth and national security depend upon the intellectual development and productivity of **all** citizens. Therefore, it is imperative that technology educators ensure that each special needs student is prepared with the necessary skills to make a meaningful contribution to society and self.

Some technology educators have been sensitive to the needs of special students and have endeavored to accommodate them in their classes without difficulty. However, others have experienced problems in doing so, possible because of a lack of information relative to teaching children with special needs and/or the absence of supportive services from other professional sectors. Therefore, this guide was developed *to provide appropriate information about learners with special needs and recommendations regarding instructional strategies which would serve to support technology education staff working with exceptional students.*

Identifying Special Needs Learners

What Technology Education Professionals Need to Know

Technology education professionals need not be concerned with the detailed identification process for special needs learners. That is the responsibility of local education agencies. However, technology education professionals should become familiar with some general characteristics of learners who are identified as "special needs" in order that they might better plan appropriate educational learning experiences.

Technology education professionals should realize that "special needs" is an inclusive term which describes students with unique characteristics that may impede their ability to develop to their maximum potential in regular school programs. Generally, a broad understanding of the unique learning charateristics of children who are handicapped, disadvantaged, or gifted/talented can be helpful to technology education personnel as they design and/or modify programs for special needs learners.

Learner Characteristics

Disadvantaged

Disadvantaged students have academic or economic disadvantages which impair their ability to function in regular technology education programs. These students typically may be members of families with low incomes, low or underachievers, or culturally or linguistically isolated (e.g. unfamiliar with American customs or the English language). Generally, disadvantaged children are of normal or above intelligence but fail to achieve in the regular school environment.

Academically disadvantaged students often display language difficulties, reading or writing problems, severe computational difficulties, or other general learning problems. These students may be frequently absent from school, have a short attention span, and display low motivation when in class. They are often selfconscious, easily discouraged, have a low self-concept, and express feelings of isolation.

Economically disadvantaged students typically are members of families whose incomes are below the national poverty level, or their parents are unemployed or are recipients of public assistance. Generally, these students exhibit many of the same behaviors as academically disadvantaged students. In some cases, family economic need may dictate that they work versus attend school.

Gifted and Talented

Gifted and talented students are those who, by virtue of outstanding abilities, are capable of exceptionally high performance academically, physically, or creatively. However, these students will not live up to their full potential unless a challenging instructional environment is provided. Teachers should not assume that gifted chidren will be able to take care of themselves because of their superior intelligence. The gifted also have unique needs and. as a result, require enriched and challenging activities guided by a caring and stimulating teacher. In fact, unless they are challenged, these students' talent and creativity may be directed toward disruptive behavior.

Handicapped

Handicapped students are learners who have specific or general handicapping conditions that may interfere with their functioning in a regular school environment. These handicaps may be sensory, physical, emotional, or any combination of the three. There are several terms used to classify students with handicapping conditions. Among these are the mentally retarded, hearing impaired, speech impaired, visually handicapped, seriously emotionally disturbed, orthopedically imparied, other health impaired, deaf-blind, multi-handicapped, and learning disabled. Because of these impairments, handicapped students may need special education and related services.

Technology education professionals will most often be providing educational experiences for those students who fall into the category of **high-incidence** handicapped (those who comprise approximately 80% of the total population of handicapped learners). Among those students are the learning disabled, mildly retarded, speech imparied, and mild to moderate hearing or visually impaired. These children have been able to achieve success in the regular school environment with supportive services and modifications in educational curriculum and teaching strategies.

Low incidence handicapped children may occasionally be placed in regular technology education programs however, most will be placed in more fully self-contained situations where their needs are more appropriately met. Among the students who may fall into this category are the severely and profoundly retarded and the severely emotionally disturbed. Profoundly deaf or blind and orthopedically handicapped children may also fall into the low incidence category. However, because of their general learning potential some have been able to function successfully in regular school programs.

The placement of learners in a least restrictive environment must be determined through an extensive evaluation conducted by qualified specialists. Technology educators should be involved in the evaluation procedure particularly to help assess a student's potential to function in a technology education learning environment. Generally, these special needs students will require support services in addition to an access/barrier-free building; for example, interpreters, educational tutors/aides, and adaptive production jigs or fixtures.

The following provide a brief description of various handicapping conditions. While not a totally inclusive listing, these guidelines will facilitate a better understanding for technology education professionals of the general physical, intellectual, and social characteristics of the handicapped.

Mildly retarded students will blend into society if given appropriate educational experiences that enable them to live and work independently. Typically, these students have an IQ between 53 and 70, and can be expected to learn to read and perform math skills at a level averaging between third and fifth grade. Also, mildly retarded students are often characterized by poor self-concepts and show deficits in adaptive (social) behavior.

Moderately retarded students tend to learn at a slower rate than do the mildly retarded. The moderately retarded can be taught tasks or activities which require single skills under adequate supervision. These students normally have IQ's below 53, and intellectually, do not develop beyond 45 percent of "normal." Many are now being integrated into public school programs as result of P.L. 94-142.

The **severely retarded** have an IQ range of 15 to 39 and require supervision in the majority of tasks that they perform. Many of these persons tend to function well in a sheltered workshop environment.

The **profoundly retarded** are those students with IQ'a below 15. They require a maximum amount of supervision, especially with tasks requiring self-care. Generally, the mainstreaming of severely and profoundly retarded in the public school may not be perceived as an appropriate placement.

Learning disabled children have normal or above average intelligence but exhibit a *specific learning disorder* in one or more basic processes involved in understanding or using spoken or written language. Their learning problems are *not* due to visual, hearing, motor, or environmental handicaps, nor are they the result of mental retardation, or emotional disturbances. Typical disorders which may be the cause of a learning disability are perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

Hyperactive or **hypoactive** children are perceived as having a behavioral handicap because they exhibit inappropriate behavior or feelings that interfere with their normal functioning in school. Most of these children can adjust well to the regular classroom with appropriate medical, psychological, and educational intervention.

The **severely emotionally disturbed** student exhibits undesirable behaviors or feelings over a long period of time that adversely affect educational performance. Such children have an inability to learn which *cannot* be explained by intellectual,

social, or health factors. School related characteristics may include poor interpersonal relationships with peers and teachers; a general pervasive mood of unhappiness or depression; periods of self-stimulation or withdrawal; and a tendency to develop physical symptoms or fears associated with personal or school problems. The term includes autistic or schizophrenic children, most of whom may profit substantially from instruction as determined through comprehensive evaluation.

Visually impaired students are handicapped in a normal educational program by their difficulty or inability to see. Under this heading, students are classified as partially sighted, legally blind, or profoundly blind. However, many have demonstrated the ability to develop proficiency in using equipment with some modification of the learning environment.

Partially sighted or **legally blind** students are those who can learn to read print, but whose vision is limited (even with corrective devices) and who need modifications in order to succeed in a normal educational program. Partially sighted persons have a vision of 20/70 to 20/200 after correction with lenses. Legally blind persons have less than 20/200 vision with spectacles.

The **profoundly blind** comprise the most severe visual classification. They cannot tell light from darkness and as a result, cannot see print but can benefit from instruction in braille. These students must depend totally on their other senses to function satisfactorily in an educational program.

Orthopedically handicapped students are normally limited in mobility, sitting, and/or the use of tools and equipment because of muscular, skeletal, or neuromuscular impairment. Included in the related causes of orthopedic handicaps are cerebral palsy, spina bifida, curvature of the spine, muscular dystrophy, hemophilia or other defects in legs, arms, neck, or hips. Orthopedically handicapped students are generally average or above average in intelligence and can function in regular school environment which has been adapted and made barrier/access free.

Hearing impaired students have a loss of hearing which affects their performance in a normal educational setting. Their sense of hearing can be limited in many ways. For example, if students cannot hear the ordinary sounds of activity around them, then they are considered *deaf*. However, when students can hear, but only hear part of what is said, then they are considered *hard-of-hearing*. Hearing losses may be mild, moderate, severe, or profound.

Hard-of-hearing individuals have some ability to hear and understand the spoken word. Although some words may be audible, the pitch and frequency of these sounds may make it difficult for these persons to ascertain their meaning. Sounds are not necessarily just softer to these individuals but may also be garbled and distorted. Some hard-of-hearing students may require the use of hearing aids and/or rely on lip reading. Likewise, deaf individuals must always require the use of an interpreter and/or lip reading.

Speech impaired students normally have speech patterns which are noticeably different from the norm. There are many forms of speech impairment, ranging from complete inability to speak to minor articulatory deficits. Futhermore, there are many causes for speech difficulties, ranging from delayed speech and hearing impairments to cerebral palsy and cleft palate.

Other health impaired students are so categorized because they demonstrate limited strength, vitality, and alertness. The conditions of the other health impaired students are caused by chronic health problems such as heart conditions, tuberculosis, rheumatic fever, nephritis, hepatitis, asthma, epilepsy, leukemia, or diabetes.

Students classified as **multihandicapped** exhibit a combination of two or more of the previously mentioned handicaps. For example, a student may be deaf *and* blind or orthopedically disabled *and* mildly retarded. As a result, special accommodations are necessary to facilitate their educational development.

Accommodating Special Needs Students in the Technology Education Program

Education methods and procedures, instructional programs and materials, and school facilities must be modified for the purpose of individualizing instruction to serve special needs youth in technology education classes. The teacher cannot accomplish this task alone. Other professionals from such areas as special education, rehabilitation, school psychology, guidance, and the community in general can help. Cooperative efforts can ensure that technology education programs for special needs learners are appropriate and have the fundamental elements for success.

The teacher remains the central factor governing the special needs student's potential for success. The teacher's attitude, personality, and self-concept will help govern his/her performance. Teaching children from special needs populations is very much like working with non-special needs students. Each needs empathy, guidance/direction, understanding, and an appropriate and challenging learning environment, carefully managed by a knowledgeable teacher. There are, however, some subtle as well as obvious characteristics of certain learners that require a change of teaching style. For example, teachers who tend to "kid" or "tease" their students may find that children with poor self-concepts or low self-esteems may interpret this as "ridicule," "cruel," and "inappropriate punishment." Likewise, special needs children want "emphathy"—understanding of their limitations and the desire to help remediate them (and also to build upon strengths)—rather than "sympathy." Teachers must continue to be "firm" but "fair," "consistent" and yet "flexible," and "concerned and caring" enough to challenge special needs students to achieve new goals and experiences.

Understandably, most technology education teachers may be a little anxious about working with "different" students. Determining what content is appropriate to teach or emphasize; how to etablish performance criteria; how to modify the laboratory; how to allocate a reasonable amount of time to instruct, tutor, and supervise special needs children in the laboratory; and how to organize for laboratory instruction may be a few of a teacher's questions or concerns. Also, what is the technology education teacher's role in preparing the Individualized Education Program (IEP) required by federal law for each handicapped child?

While it is difficult to generalize, it has been the experience of many successful technology education teachers that typical technology education instructional techniques lend themselves to various groups of learners. The emphasis on "learning by doing," teaching through "demonstration," and "modeling," and organizing instruction in "step-by-step" procedures in a logical sequence of events helps to improve a student's ability to conceptualize and "imitate" observed responses.

The Individualized Education Program (IEP)

The Individualized Education Program (IEP) provides an excellent source for student assessment, identification of individual needs, and development of instructional activities for the learner. The special needs teacher designated as having primary responsibility for the child's program shall be responsible for developing and revising the child's IEP. Each IEP should include as a minimum:

- A statement of the child's present level of educational performance.
- A statement of annual goals, including short-term instructional objectives.
- The projected dates for initiation of services and the anticipated duration of the services.
- Appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual basis, whether the short-term instructional objectives are achieved.

Technology education teachers should become involved in the development of the IEP

as either members of the development team or as consultant to that team. The information presented in the IEP should serve as a guide for curriculum modifications needed to accommodate specific handicapped students into technology education programs and also document the need for supportive resources.

Modification of the Physical Environment

Generally, modification of tools, facility, or equipment are only needed for certain handicapped individuals. For example, students in wheelchairs need some special adaptations to desks, machinery, and workbenches; but, these problems can usually be worked out on an individual basis. Elevators, ramps, wall railings, wide aisles, and specially-designed restroom facilities are a few examples of building changes that may be necessary to accommodate some ambulatory students.

Some adaptation must be made to ensure the safe and effective use of tools and equipment in the technology education laboratory. For example, teachers have made "jigs" and "fixtures" to allow visually impaired students to use power machinery and tools to manufacture products. Also, a combination of flashing lights and bells should be used as a signal system in the laboratory to accommodate both hearing and visually impaired children. Work stations may need to be examined for adequate safety devices and objects should be removed which may cause injury to cerebral palsied or epileptic students.

By and large technology education teachers possess general technical "know how" when it comes to designing special adaptive equipment. However, consultation with special education professionals is a "must" when assessing individual needs and making subsequent adaptation.

Modification of Curriculum and Instructional Approaches

Modification of curriculum materials and instructional approaches may be necessary to meet the individual needs of various special needs students. For example, teachers may need to provide more visual materials for learning disabled or disadvantaged youth, while employing various behavior modification teaching strategies for certain groups or mentally retarded learners. Furthermore, activities may need to be restructured for talented and gifted students to make them more challenging.

When modifying curriculum materials and instructional approaches it is necessary to apply sound educational principles that will help all students, especially those who have special needs. The following is a list of some general instructional strategies and techniques which might be used when planning and organizing technology programs for special-needs youth:

- Use both visual and verbal teaching techniques.
- Vary teaching techniques—make use of modeling, imitation, discussion/lecture, and other techniques.
- Reinforce appropriate behaviors that are in context with desired learning outcomes. An adequate feedback system should be provided, whether it be verbal or non-verbal, oral or written. Lessons should be planned so that immediate feedback is provided.
- Organize instruction to guarantee some degree of successful learning outcomes. Do not perpetuate the "failure syndrome" associated with some special needs youth.
- Utilize assessment data to ascertain the optimum level at which the special needs learner can work. Work that is too easy will not challenge the learner. Likewise, if the material is too hard, it could cause unnecessary anxiety thus reducing student motivation and ability to learn.
- Repetition is an important teaching technique for most learners and usually creates a positive momentum for teaching "hands on" learning activities.
- Help students develop a sequential and simple way of correcting problems which might occur. Keep steps small and build on previoulsy learned tasks.
- Special education teachers and tutors can correlate the teaching of related subject matter to technology education

production activities. Also, remedial instruction in basic-subject skills may be provided.

- Special needs students should be made to feel a part of the class, rather than "separate" or "special." Facilitate their active participation in group activities such as V.I.C.A., mass production and laboratory maintenance so that they perceive themselves as an integral part of the learning team.
- Technical or related career information should, whenever possible, be integrated with laboratory activities to show the immediate application of the information.

In addition to the aforementioned general instructional strategies and techniques which apply to all special needs youth, there are some specific instructional strategies which have a direct relationship to respective special needs areas. These strategies are outlined in the following chart.

Special Needs Area	Suggested Instructional Strategies
Disadvantaged	1. Provide current periodicals and books written on appropriate reading levels. 2. Encourgae group projects that facilitate social development. Use V.I.C.A. as an active part of the program. 3. Offer praise and encouragement. 4. Use a wide variety of instructional media and materials. 5. Provide relevant and concrete activities 6. Relate "hands-on" experiences to development of communication and social skills. 7. Provide activities that are short in duration.
Gifted and Talented	1. Encourage research and development activities. 2. Provide activities that are challenging. 3. Avoid activities that call for routine and drill. 4. Build abstract reasoning and conceptualization into activities.
Learning Disabled	1. Give written and oral tests. 2. Provide visual clues to problem solving tasks. 3. Instruction should be presented according to the appropriate learning made of the student with support from the LD teacher. 3. Double space typed handouts. 4. Keep assignments simple (reduce to one task). 5. Introduce vocabulary words before teaching an activity. 6. Have the student repeat steps of assembly tasks to you. 7. Underline key words in reading assignments. 8. Utilize tape cassettes, films, and filmstrips.
Mentally Retarded	1. Organize material in small steps. 2. Provide immediate feedback. Utilize positive reinforcement as much as possible. 3. Use tutors, aides, or peer teaching techniques. 4. Use imitation and modeling techniques. 5. Provide visually oriented instruction. 6. Use demonstration techniques.
Emotionally Disturbed	1. Use a highly structured, routine oriented method of teaching.

Special Needs Area	Suggested Instructional Strategies
	2. Explain the standard of acceptable behavior: be firm, fair, and consistent in discipline. 3. Use behavior management teaching strategies (e.g. positive reinforcement). 4. Reduce visual and auditory distractions. 5. Set one goal at a time and approach goals in a step-by-step, sequential fashion.
Orthopedically Handicapped	1. Do not "coddle." Allow the student to do his/her own work and utilize the same evaluation standards as with non-ambulatory students. 2. Employ the "buddy system" for such activities as obtaining "hard to reach" stock or for reaching inaccessible switches or handles. 3. Focus on the student's abilities rather than the student's disability. 4. Make necessary modifications to the physical plant, tools, and machines.
Visually Handicapped	1. Do not raise your voice. The blind are not necessarily hearing impaired. 2. Speak directly to the blind student, not to a third party. 3. When talking to a blind student, use the words you normally use. Do not try to avoid words like "look" and "see," which are part of everyone's vocabulary. 4. If discussing a form or passing out materials, describe these to the visually impaired. 5. When teaching or explaining something to a blind person, be consistent in your directions since he or she cannot watch what you are doing. Explain fully and whenever possible let the sense of touch substitute for vision. 6. Say what you are doing when you demonstrate. Check your terms to avoid abstractness (for example, "This fastens on there"). 7. Make clear how similar parts of processes can be distinguished by touch or sound. 8. Make sure that you say everything you write on the chalkboard. 9. Encourage sighted classmates to be helpful but not do the student's work. 10. Seat the visually impaired student in a position where he or she can hear you clearly and has adequate lighting. 11. Keep the students informed of any changes in arrangements of furniture or equipment.
Hearing Impaired	1. To help the hearing impaired student lip-read better: a. Always face the student when speaking. b. Articulate clearly and with normal speed, enuniciating each word but without exaggerating or overpronouncing. c. Speak in a natural tone of voice. d. Stand still when talking and keep within close range of the student.

e. Rephrase sentences if the student doesn't seem to understand, you may be using words he or she is not familiar with, or a particualr combination of lip movements may be very difficult to lip-read.
f. Avoid standing with your back to a window or other light source.
g. Let your expressions and motions include emphasis and feeling.

2. Be sure that the student is paying attention when you assign him or her a task.
3. Try to maintain eye contact with the student.
4. Write on the board without speaking; then turn back to the class and speak.
5. Use many visual aids and written materials.
6. Provide outlines and vocabulary lists for any complicated topic being discussed.
7. Seat the student advantageously when he or she is participating in a group.
8. Provide the student with a brief outline or script printouts to follow a lecture, movie, or filmstrip.
9. Hearing impaired students may have difficulty reading the lips of male teachers with large quantities of facial hair.

Speech Impaired

1. Never call attention to a special speech problem.
2. Pay careful attention when the student is speaking.
3. Don't say words for students when they have difficulty in getting them out.
4. Provide success-oriented, non-speech activities.
5. Use the consultative services of a speech therapist.
6. Label tools in the laboratory.
7. Use diagrams, pictures, and charts where possible in the place of written material.

Identifying and Using Resources to Facilitate Technology Education Instruction

There are a number of excellent books, articles, projects, agencies, support services, and organizations that provide assistance to teachers of special needs students. In most instances, more supportive services are readily available for special needs students than for non-special needs populations. There are more descriptive records, available test data, unique counseling services, and diagnostic records regarding abilities and disabilities. For example, the IEP should provide a wealth of information to help technology education teachers accommodate special needs students in the laboratory.

Supportive services within local schools may include special education resource teachers, remedial reading teachers, vocational counselors and work study coordinators. Teachers of special needs students are members of a professional team and have a number of dedicated individuals who are available to provide assistance and support. Teachers should consult with their colleagues to identify locally available services and supportive resources.

Teachers usually deal with resource information in one of two ways. Some teachers feel a need to know all aspects of the student's abilities and disabilities in order to feel secure about working with that individual. These teachers generally review *All* available records and contacts with supportive services. Other teachers do not care to examine students records or other related data, but prefer to have a *brief* conservation with the special education teacher, counselor, or school psychologist.

Some educators believe that information regarding a child's abilities (whether strengths or weaknesses) tend to influence the teacher's attitude and behavior toward the child and may have an impact on the child's behavior. Therefore, it is important to think positively about a child's potential and have trust in his/her ability to progress within a specialized program.

The education of special needs students is not a task that technology education teachers must face alone. The M-team evaluation process is principally responsible for meeting the students needs. There are also a number of governmental agencies and civic organizations that provide support services to parents and teachers of special needs students. For example, the Lions Club may provide visual examinations, medical treatment, or glasses for visually handicapped children. Likewise, the Bureau of Vocational Rehabilitation or the Area Community Mental Health Center should be contacted for medical and psychological evaluations, counseling, and for specialized equipment which the school cannot supply but is needed to ensure successful functioning within the technology ed. program. Check the Yellow Pages of the local telephone directory for other agencies, addresses, and telephone numbers.

Each school functions a little different regarding the utilization of supportive services operated within the school. Teachers should become aware of their school's policies governing such services and should utilize the available services whenever needed.

A list of major local regional and national agencies and professional associations that provide supportive services for teachers of special needs persons follows. Educators should feel free to contact these agencies for professional assistance in developing instructional materials and services.

Area Learning Resource Centers (ALRC) 13 Regions

Thirteen regional Area Learning Resource Centers (ALRC) have been established to provide assistance to local educational agencies in identification, evaluation, selection, and development of special education materials. Centers also provide in-service training regarding the selection and utilization of instructional media for special needs learners. Educators should contact their special education consultant at the local, state, or regional levels to determine if Associate Special Education Instructional Materials Centers exist in their state to provide additional local assistance.

Region

Northwest ALRC
University of Oregon
Clinical Services Building
Third Floor
Eugene, Oregon 97403
(503) 686-3591

California LRC
600 South Commonwealth Avenue
Suite 1304
Los Angeles, California 90005

Southwest ALRC
New Mexico State University
Las Cruces, New Mexico 88003

Midwest ALRC
Drake University
1336 26th Street
Des Moines, Iowa 50311
(515) 271-3951

Texas ALRC
The University of Texas at Austin
College of Education Building
1912 Speedway
Austin, Texas 78712
(512) 471-3145

Great Lakes ALRC
Michigan Department of Education
P.O. Box 30008
Lansing, Michigan 48909
(517) 373-9433

ALRC No. 7
Materials Development and
Dissemination
Specialized Educational Services
Illinois Office of Education
100 North First Street
Springfield, Illinois 62777
(217) 782-2436

Ohio ALRC
933 High Street
Worthington, Ohio 43085
(614) 466-2650

Northeast ALRC
168 Bank Street
Hightown, New Jersey 08520
(609) 448-4775

New York State ALRC
55 Elk Street
Room 17
Albany, New York 12234
(518) 474-2251

Pennsylvania ALRC
573 North Main Street
Doylestown, Pennsylvania 18901
(215) 345-8080

Mid-East ALRC
University of Kentucky
123 Porter Building
Lexington, Kentucky 40506
(606) 258-4921

Southeast ALRC
Auburn University at Montgomery
Highway 80 East
Montgomery, Alabama 36117
(205) 279-9110, Ext. 258

Special Education Regional Resource Centers

A network of 12 Special Education Regional Resource Centers was organized to locate and verify successful practices used in the education of handicapped students. Specifically, agencies provide assistance to determine proven methods of identifying and evaluating handicapped children according to federal and state legal requirements; program development in rural and urban areas; and other aspects of education for the handicapped, including placement in a least restrictive environment and individualized education program planning.

N.E. RRC/Trinity College
Colchester Avenue Burlington, Vermont 05401

HY RRC/400 Huntington Hall
Syracuse University
150 Marshall Street
Syracuse, New York 13210

Mid-Atlantic RRC
George Washington University
1901 Pennsylvania Avenue, N.W.
Washington, D.C. 20006

Mid-South RRC/University of Kentucky
Research Foundation
Porter Building, Room 131
Lexington, Kentucky 40506

South Atlantic RRC
Florida Atlantic University
1230 North University Drive
Plantation, Florida 33322

Upper Midwest RRC
Burton Hall
University of Minnesota
Minneapolis, Minnesota 55105

Southwest RRC
P.O. Box 44064
Capital Station
626 North Forth Street
Baton Rouge, Louisiana 70804

Mid West RRC
Drake University
1332 26th Street
Des Moines, Iowa 50311

Inter Mountain Plans Regional Resource Center
Utah State University
Exceptional Child Center
Logan, Utah 84322

RRC West
3325 Wilshire Blvd., Room 1345
Los Angeles, California 90010

NW/RRC Clinical Service Building
1590 Willamette Street
Eugene, Oregon 97401

Tri-State Midwest Regional Resource Center
The Ohio State University
356 Arps Hall
1945 North High Street
Columbus, Ohio 43210

Resources

National Disseminating Centers and Professional Associations

American Industrial Arts Association
1914 Association Drive
Reston, VA 22091

American Vocational Association
2020 North 14th Street
Arlington, Virginia 22201

The Educational Resources Information Clearinghouse on Handicapped and Gifted
Council for Exceptional Children
1920 Association Drive
Reston, Virginia 22901

National Association for Gifted Children
217 Gregory Drive
Hot Springs, Arkansas 71901

National Center for Educational Media and Materials for the Handicapped (NCEMMH)
The Ohio State University
Faculty for Exceptional Children
1945 North High Street
Columbus, Ohio 43210

National Instructional Center for Special Education Materials (NICSEM)
University of Southern California
University Park
Los Angeles, California 90007

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